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FORUM-TYPE ROOMS--AN INNOVATION IN CLASSROOM DESIGN AND UTILIZATION.

BY- HASKELL, BARRY S.

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A FORUM-TYPE ROOM IS ONE DESIGNED TO PROVIDE EFFECTIVE, LARGE GROUP INSTRUCTION AT LOWER COST THAN IN REGULAR CLASSROOMS. INSTRUCTION BECOMES MORE EFFECTIVE THROUGH COORDINATED USE OF ALL TYPES OF AUDIOVISUAL MEDIA, SUBPROFESSIONAL SUPPORTING STAFF, DETAILED PLANNING AND REHEARSAL, AND THE FACILITY ITSELF. A PROPOSED MODEL OF A FORUM-TYPE ROOM WOULD INCLUDE (1) 300 STUDENT STATIONS, TABLET-ARM CHAIRS, A SLOPING OR STEPPED FLOOR SURFACE, STEREOPHONIC SPEAKERS, AND TELEVISION RECEIVERS, (2) A SPEAKER'S CONSOLE WITH TAPE AND RECORD PLAYERS, AM AND FM RADIO, WIRELESS MICROPHONE, AND CONTROLS FOR SPEAKERS, (3) LIGHTS, SCREEN, AND PROJECTORS, (4) REAR-VIEW PROJECTION OF FILMS, SLIDES, FILMSTRIPS, AND OPAQUE MATERIALS, (5) A TELEVISION CONTROL CENTER, AND (6) IF DESIRED IN A SPECIFIC INSTALLATION, A "STUDENT RESPONSE SYSTEM" RECENTLY CONSTRUCTED FACILITIES INDICATE 1967 COSTS WOULD BE ABOUT $700 PER STUDENT. CONSIDERATION SHOULD BE GIVEN TO EASE OF ENTRY AND EGRESS, INCREASING STUDENT ATTENTIVENESS, STUDENT ABILITY TO TAKE NOTES, ENVIRONMENTAL CONTROL, MAINTENANCE, EASE OF ALTERATION, AND SUPPORTING STAFF. A 51-ITEM BIBLIOGRAPHY IS INCLUDED. (WO)

ERIC

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FORUM-TYPE ROOMS: AN INNOVATION IN CLASSROOM DESIGN AND UTILIZATION

by

Barry S. Haskell*

UNIVERSITY OF CALIF.
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*Present address: Los Angeles Pierce College
6201 Winnetka Avenue,
Woodland Hills, California 91364

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ERRATA

PAGE 2, LINE 22-24...should read "....junior colleges in general." Strike "....and to the three.... in particular".

PAGE 5, LINE 19 .....should read "appurtenances", rather than "appertanences".

PAGE 9, LINE 13 .....should read "33 hours per week" rather than "43 hours.....".

PAGE 9, FOOTNOTE ....should read "James S." rather than "James J.".

PAGE LL, LINE 4 .....should read "shows", rather than "shous".

PAGE 13, FOOTNOTE # 14.....the closing phrase should read "three dimensional television".

PAGE 15, LINE 9 ....should read "hours" rather than "hourw".

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ABSTRACT

Owing to the demand for increased facility capacity, forum-type rooms have become an important educational innovation whose function is to provide effective, large-group instruction at lower cost. These functions can be attained if the complex problems of planning and design, class scheduling, and coordination of instructional and support personnel are satisfactorily met.

A theoretical model forum-type room might include: at least 300 student stations, a fully-equipped projection room, a television control center, and a student response system. The room would have stereophonic speakers and television receivers deployed at strategic locations. Tape recorders, turn-tables, radio, and wireless microphones could be controlled and/or operated from the Speaker's Console.

Using present (Spring 1967) construction and equipment cost data, the cost of the model above is estimated at $ 210,000. The cost per student station would be approximately $ 700.

INTRODUCTION

General Statement

The ever-increasing number of students seeking and entering higher education has marked the concept of "forum-type" instruction at the college level as an educational innovation which has become increasingly important to students, faculty, administrators, and school planners. Owing to sheer increase in number of college students (from five million in 1964 to a projected figure of eight and a half million by 1975[1]), this nation must almost double its facility capacity by 1975 if it wishes to accomodate the number of students expected. Full accomodation is a national objective[2], rather than an educator's wish or dream.

Thus, as one of several new solutions to the student/space relationship, the utilization of "forum-type" rooms has been undertaken by many institutions. Reports from these institutions indicate that instruction in forum-type rooms poses not only large educational promise, but also many complex problems.

Previous Work

Two important sources of literature concerning forum-type rooms are the School Planning Laboratory at Stanford University, Stanford, California and the Educational Facilities Laboratories located in New York City. The latter was established in 1958 and is supported largely by the Ford Foundation.

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1. American Education, U. S. Department of Health, Welfare, and Education, Office of Education, Nov. 1965, p.21.
2. Lyndon B. Johnson, State of the Union Message, address to Congress, Washington, D.C., January 1967.

Both organizations are rapidly increasing the literature of educational facilities and housing. Basically their reports disseminate knowledge regarding research, experimentation and innovations in these fields. Several of their articles deal with modern forum-type rooms, notably a report from Educational Facilities Laboratories entitled "New Buildings on Campus" which includes six architectural designs for a college communications center. Stanford's School Planning Laboratory published "A Window to the Future" which was written by and specifically for community college planners.

Almost all textbooks of school archtiecture are now more than ten years old and do not contain information concerning forum-type rooms. However, the literature of educational television is growing rapidly and may be very useful in relation to the planning of forum-type rooms. Chapman's "Design for ETV - Planning for Schools with Television", published by Educational Facilities Laboratories is helpful and contains an excellent bibliography.

Present Work

The primary focus of this study is to explore the present and potential utilization of forum-type rooms and to evaluate these uses in light of their applicability to the educational programs of community junior colleges in general, and to the three future junior colleges in the Los Angeles Junior College District in particular.

Secondly, this report is written so that relevant information (architectural, cost analytical, Instructional) may be

readily available to those persons responsible for formulizing college class scheduling, constructing Master Building Programs, and to those who must substantiate or change existant policies regarding student/space utilization.

A tertiary goal was the compilation of an up-to-date bibliography to which the reader is referred for more detailed information on the many specific subjects engendered in this report.

Acknowledgments

The writer is indebted to Eugene Kinnett of the Educational Housing Branch of the Los Angeles City Board of Education for providing written files and general plans regarding the future colleges of the Los Angeles District. Thanks are due Vierling Kersey, Jr. of Los Angeles Pierce College for making available the Master Building Program files for the future West Los Angeles College.

For use of facilities of the Clearinghouse for Junior College Information on the University of California, Los Angeles campus, gratitude is extended.

The generosity of the many teachers and students at the University of California, Los Angeles who have given advice and assistance during this investigation is greatly appreciated.

FORUM-TYPE ROOMS

What Are They ?

A search of the available literature fails to reveal a definition of a "forum-type" room. Certainly the concept of today's modern forum-type room differs significantly from the ancient Roman forum which essentially was a "public square", or simply a room for the public discussion of issues. It is doubtful, owing to rapid technological change, that any definition which could be given at this time would be valid ten years from now. It is simply too early in the architectural history of this type of classroom to describe the typical forum-type room. Certainly many colleges are now using forum-type rooms, but no two schools have the same exact blueprints for their respective forum-type rooms.

There is, however, general agreement as to the nature, purpose, and function of the forum-type room: it provides effective, large-group instruction at lower cost. More effective instruction may be attained through the coordinated use of all types of audio-visual media, sub-professional supporting staff, detailed planning and rehersal by the instructor, and, indeed, the physical nature of the forum-type room itself.

"Large-group" instruction, for the purpose of this report, is defined as greater than one hundred persons. A search of the present literature, and data obtained from other sources, indicates that seating capacity in forum-type rooms varies between 100 and 670, with 300 being perhaps an optimum capacity from an instructional point of view for greater flexibility, intimacy, and effectiveness.

Naturally, a variety of factors determine the resultant size of an individual forum-type room, and the number of forum rooms at a particular campus. For example, the nature of the institution can be examined as to: public versus private, metropolitan/urban vis-a-vis suburban or rural, limited enrollments as opposed to the open-door policy of community junior colleges.

The nature of the faculty and school tradition may play an important determinitive role if the college has a long history of maintaining a relatively small student/faculty ratio. Strong faculty influence may result in fewer and/or smaller capacity forum-type rooms.

Administration may affect size and number also. If chief administrative officers wish to cut instructional costs, the forum-type room may provide one means to this end by allowing a very high student/faculty ratio to exist.

Although, as previously mentioned, there is as yet no typical or set plan for a forum-type room and its necessary appertanences, perhaps a theoretical model would include the following elements:

(1) 300 student stations[3], generally of tablet armchair design arranged in semi-circular or curvulinear fashion on a sloping or gently-stepped floor surface. The room is equipped with stereophonic speakers and several 24-inch television receivers located at properly spaced intervals[4].

3. Eugene Kinnett, personal communication, February 6, 1967; Mr. Kinnett advises that the Los Angeles District has determined that 300 is optimum size for its needs. Writer has arbitrarily employed this figure as optimum.

4. Dave Chapman, Design for ETV-Planning for Schools with Television, Educational Facilities Laboratories, New York, 1960, p. 57-80.

(2) Equipment normally available at the Speaker's Console includes tape recorder, 16-inch turn table, radio (both AM and FM), wireless microphone, control of the height of the podium, separate volume controls for podium speaker and all microphones, individual controls for the stereophonic speakers, controls for house lights, screen, curtain, and spotlight, and controls to operate the projectors equipped with automatic slide changers.

(3) A projection room should preferably be located in back of the screens. This arrangement allows for rear-view projection by 16 mm sound movie projector, 35 mm slide and/or filmstrip projectors, and opaque projector. The rear-view projection method has been deemed clearly preferable in that there is less student distraction and that it allows for much greater lighting which facilitates student notetaking.[5] The projection room may also house tape recorders, turn tables, electric pointers, and stage controls for house lights, screen, curtain, and spotlights.

(4) A television control center (this may be a part of the projection room) which may be used to: (a) originate "live" images (either actual events possibly far removed from the campus, or perhaps laboratory experiments being conducted in another part of the campus), (b) originate film recordings (of events or programs recorded on photographic film), and (c) originate video tape recordings (of events or programs electronically recorded on magnetic tape).

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5. Planning a Large Group Student Response System, a pamphlet distributed by the Edex Corporation, Mountain View, Calif., 1965, p. 1.

Normally the television control center would serve to house equipment for image and sound transmission for each of the following circuits: (a) Open Circuit (UHF) Ultra High Frequency, (b) Open Circuit (VHF) Very High Frequency, and (c) Closed Circuit Coaxial Cable.

(5) Some forum-type rooms (notably a 240 seat forum at Foothill College[6] in California and a 670 seat installation at Chicago Teachers College North) have been equipped with "student response systems". These are currently under study by the Los Angeles Junior College District for possible adoption for use in its three proposed colleges. Basically, a student response system requires the installation of respondors[7] on each student station. Each respondor has five buttons, marked A, B, C, D, and Off. Four meters on the Speaker's Console would provide an analog readout of the student's response, and a fifth meter would indicate the number of students in class. Additions to the system would allow for: (a) automatic program playback ability, and (b) automatic data handling capability (Computer analysis and handling).[8]

How Much Do They Cost ?

A variety of dependent variables may influence the projected cost of a forum-type room, and it is not the intention of the writer to categorically state costs other than in a general way. Thus the reader is simply provided with figures that

6. C.J.C.A. News, vol. 13, no. 3, February 1967
7. "Responder" is small box (2 x 3 x 6 inches) attached to armchair.
8. Planning A Large Group Student Response System, op. cit., p.3.

planners have found to be reasonable for construction of forum-type rooms.

The projected costs for two 300-seat forum-rooms planned for the future West Los Angeles College were $ 392,677. The two forum-rooms cover approximately 12,500 square feet, resulting in a cost of $ 23.70 per square foot. Included in these figures is $ 50,000 for equipment. The cost per student station, derived by dividing the total cost by the number of student stations, was $ 654. The figures cited above[9] are based upon March 1964 conditions and one should bear in mind that both equipment and construction costs have risen significantly in the past three years.

Orange Coast College, in Costa Mesa, California provided accurate figures[10] of construction and equipment costs for its first forum-type room which was built in 1960. At that time its 300-seat facility was built for $ 156,089. An additional $ 11,410 was expended for seating, and the electronic Speaker's Console was purchased and installed for $ 12,458. Total cost was, therefore, $ 179,957. Cost per pupil station was $ 600.

School planners realize that constructions costs have risen approximately 15 percent since 1954[11]. This percentage increase is in accord with a straight-line extrapolation of Orange Coast College's 1960 costs and West Los Angeles College's 1964 estimates. Thus, we may perceive the 1967 student station cost at approximately $ 700 for forum-type rooms of 300 seating capacity.

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9. G.H. Womble, Jr., West Los Angeles Area College Master Building Program, Los Angeles Junior College District, Los Angeles, California. March 19, 1964.
10. "Forum Demonstration", a brochure published at Orange Coast College, Costa Mesa, California, April 29, 1960.
11. Survey of Current Business, Office of Business Economics, U.S. Dept. Commerce, vol. 47, no. 1, January 1967, p. S-10.

EVALUATION

General Statement

This section shall focus upon the *criteria* for evaluation of forum-type rooms, rather than appraisals of operational forum-type rooms and their intended instructional use. Some of the latter is discussed in the following section of this report on Utilization. The writer's criteria for evaluation are based upon student-centered considerations, faculty or teacher-centered rationale, and from the viewpoint of the administrator and/or Board of Education. It should be stressed than an overall evaluation of a forum-type room, or rooms, should only be made after thorough study of all salient data.

Criteria for Evaluation

Student-centered considerations:

(1) *Ease of entering and leaving the forum-type room:* It is normal that a forum-room would be utilized up to 43 hours per week[12] (perhaps more if evening classes are scheduled) and that the passing time between classes is 10 minutes at most schools. Thus, it is very likely that 600 persons must enter or leave in that time. Design criteria for entering and leaving the structure may assume critical importance.

(2) *Student's degree of attentiveness:* Several factors play a part in determining attentiveness. Among them are room shape and the amount of interference or distraction. Greater attentiveness is gained when the room narrows toward

12. James J. Fitzgerald, personal communication, February 23, 1967. Mr. Fitzgerald is Dean of Instruction, Orange Coast College, Costa Mesa, California.

the Speaker's Console or screen, and proper acoustic planning and freedom from visual obstructions are important factors in reducing distraction. Rear-screen projection offers less distraction than front projection.

(3) *Student's ability to take notes as desired:* The major disadvantage of front-screen projection is the reduction of lighting which results. With rear view projection light level may be up to ten times as high, and provide for excellent notetaking conditions.

(4) *Student's willingness to respond:* No studies are as yet in print regarding "willingness to respond", though several recent articles deal with student alienation.
It is probable that if a course includes a seminar group or a laboratory session along with large-group lectures, the student's willingness to respond may be maintained and/or enhanced. Electronic student response systems, as mentioned darlier in this report, are one innovation which attempts to maximize student response in large-group situations.

(5) *Student attendance:* Experiences at those colleges utilizing forum-type rooms indicate that student attendance has not been adversely affected. Drop-out rates were not found to vary significantly with traditional classroom figures.

Faculty or teacher-centered rationale:

(1) *Ease of entering and leaving the forum-type room:* In addition to extreme student traffic during the passing time, instructors may have to bring in special materials or set up scientific equipment. An entrance/exit to a Preparation Room

located to the rear of the Speaker's Console or demonstration table will satisfy this need. Figure 1, an architect's overhead view of the Science Hall at Orange Coast College, shows such a relationship.

(2) *Environmental control:* Proper lighting, temperature regulation, and air flow control are a necessary adjunct to large-group instruction. Special attention must be given to all three items in order to secure a maximal learning environment.

(3) *Instructional load:* The greater need for detailed lectures and more exacting preparation of them than is ne essary for small-group instruction, and the need for greater overall planning and coordination in presenting a course almost necessitates load reduction in direct proportion to the number of forum lectures per week given. This has been the for ula at Orange Coast College.

Preliminary studies for the West Los Angeles College indicated no load reduction[13], but showed that no English instructor would teach more than one hour per week in the forum-type room. In addition, most of the instructor's classes were distinctly small-group, with no more than 20 students per class. Fifteen lecture hours constitutes a "full load" in the Los Angeles Junior College District.

Administrator-centered and Board of Education viewpoints:

(1) *Maintenance costs:* The cost of upkeep of the room is no more than any other school room of approximate size.

13. William R. Kepley, Jr., written communication, contained in Master Building Program Files for West Los Angeles College, December 10, 1963.

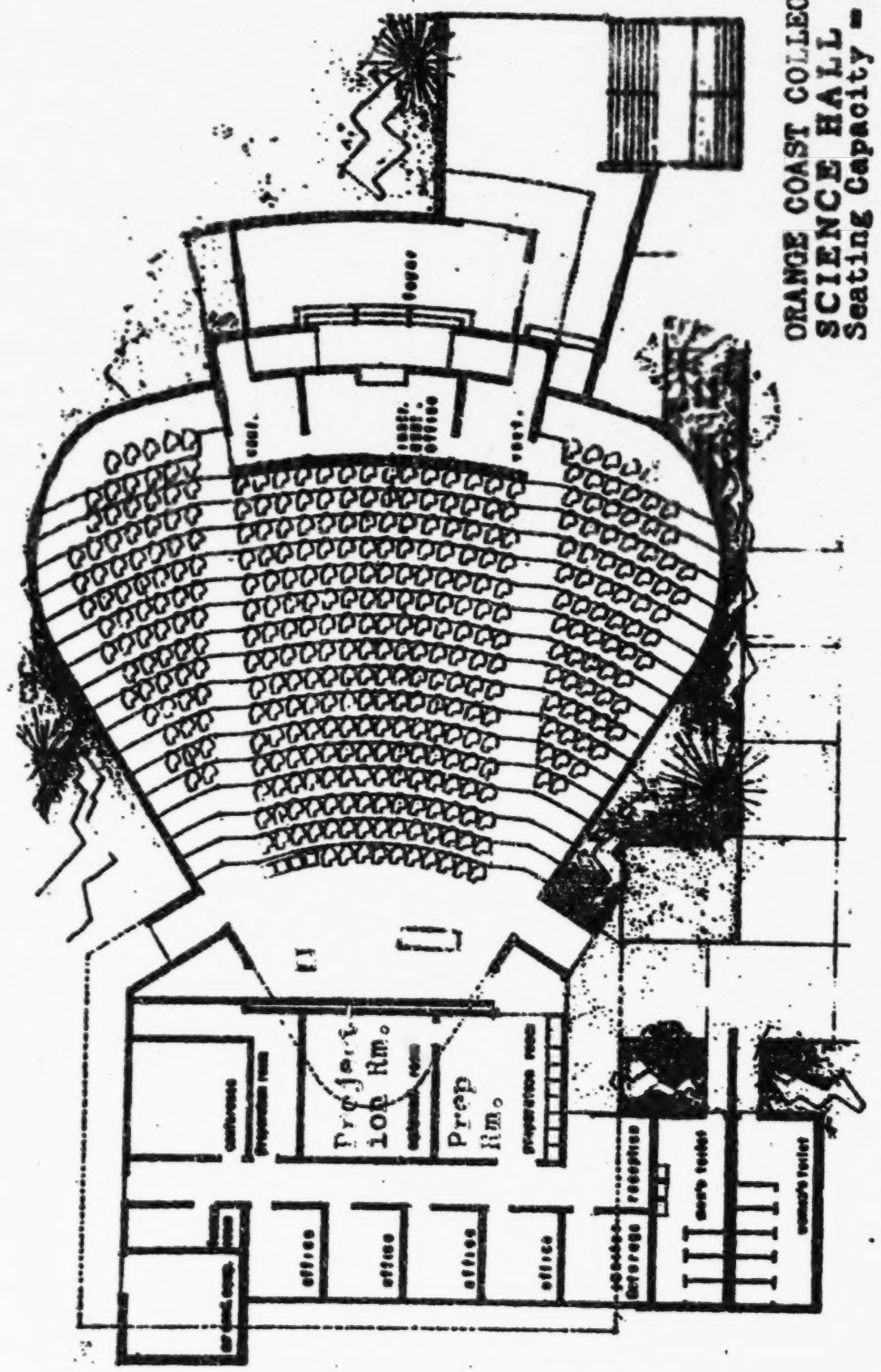

Plate 1. Plan view format of Science Hall, Orange Coast College, Costa Mesa, California. This forum-type room offers rear-screen projection and has four places for wheelchair students in the first row. There are four exits for the facility which has a seating capacity of 374.

Expenses for equipment repair and upkeep are comparable to similar audio-visual maintenance figures.

(2) *Sub-professional supporting staff cost:* Salaries or wages are paid to projectionists, television production staffs, computer experts, and their aides and helpers when and if their services are used. Thus, depending upon the type of program and its requisite needs, the costs for sub-professional staff vary widely. Normally, however, if several forum-type rooms are serviced from a central projection pit fewer projectionists and supporting personnel are required. Back-to-back forum-type rooms with a central projection room servicing both facilities will probably be planned by many junior colleges whose enrollment approximate 6000.

(3) *Ease of alteration:* In order to reduce future costs of alteration and improvements, flexibility of design assumes paramount importance. Modular construction techniques have been developed to a point where room size can be changed quite rapidly at amazingly low cost. Also, planners and/or administrators are not necessarily aware of the instructional techniques which will be used ten to twenty years hence[14], and thus design flexibility is of the utmost importance.

(4) *Potential for instruction:* There is little doubt that a well-prepared, talented instructor, supported by a well-coordinated staff, and supplemented by multi-visual and audio equipment can bring about very effective learning. The forum-type room is merely a well-designed vehicle to bring about maximal efficiency in large-group instruction.

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14. A January 1967 press release from Bell Telephone Laboratories states that it is not entirely improbable that laser beams reflecting from holographic plates to produce mid-air three-dimensional images could be used in classrooms. This is close to what one would consider "three dimensional tele-

(5) *Student capacity:* This is probably the easiest criterion to quantify, or to equate into dollars and cents cost. Because of this "student capacity" will be studied carefully and serve both administrators and Boards of Education as a guide for: (a) determining actual or potential levels of educational costs, and (b) determining how best to meet the tide of future students expected on college campuses.

UTILIZATION

Course Offerings

A great variety of subjects may be taught in forum-type rooms. According to Fitzgerald[15], Orange Coast College is presently offering History, Political Science, Art Appreciation, Music Appreciation, Humanities, Business, Psychology, Health Education, Astronomy, Biology, Zoology, Physical Science, and Introduction to Teaching. Other California junior colleges are providing similar spectra of class offerings in forum-rooms.

Hours Utilized

Most junior college districts evaluate classroom utilization on the basis of the number of hourw per week classes are held in the room. A norm of 34 hours is equated with 100 percent utilization for lecture-seminar classrooms by California's Coordinating Council for Higher Education; most districts apply this norm or a similar one. Using the 34-hour norm, utilization of Orange Coast College's Science Hall for the Spring 1967 semester was 76 percent, based upon 26 hours of weekly instructional use. The other forum-type room at Orange Coast College was employed 33 hours for 97 percent utilization. These figures compare very favorably with lecture-seminar classroom utilization at Pierce College, for example, where 80.5 percent utilization was reported[16].

15. James S. Fitzgerald, op. cit.
16. Marie Y. Martin, Presidential address to Pierce College Faculty, Pierce College, Woodland Hills, California, February 6, 1967.

Other Potential Uses

Although effective, large-group instruction will remain the primary function of their utilization, forum-type rooms may be used for other purposes. Guest lectures are especially appropriate in these rooms, as are the "noon music listening programs" which would employ the stereophonic system to full advantage. Doubtless many other potential uses exist. Perhaps the greatest potential value would be in their use as a place for further experimentation and innovation in instruction and curriculum.[17]

17. B. Lamar Johnson, Islands of Innovation, Occasional Report No. 6, U.C.L.A. Junior College Leadership Program, School of Education, University of California at Los Angeles, Los Angeles, California, 1964, p. 14.

CONCLUSIONS AND RECOMMENDATIONS

General

(1) Audio-visual forums represent a new innovative development in classroom design and utilization; their function is to provide effective, large-group instruction at lower cost.

(2) The lack of research literature on this subject urgently signifies the need for further work and, hopefully, eventual publication of the results of student, faculty, or administrative research data.

(3) Owing to the large size, complex equipment, and the unique instructional conditions and requirements, a very detailed and coordinated planning effort is necessary in order to bring about a high degree of productive utilization of audio-visual forums.

(4) Because research literature is often not available to those concerned with the planning phases of forum-rooms, some mistakes in design, often costly, are quite possible. There is, therefore, a very real need for effective, nationwide dissemination of new knowledge concerning forum-rooms; Perhaps the U.C.L.A. Clearinghouse for Junior College Information (which is associated with ERIC - Educational Research Information Center) could undertake this function.

Design

(1) Flexibility of design should be "built in" to future forum-rooms in order to reduce costs of future alterations and improvements.

(2) Particular attention should be given to size, location, and the number of entrance/exits. Student-traffic studies indicate that four entrance/exits greatly ease traffic congestion during the passing time.

(3) Modular construction techniques may be applied to forum-type rooms.

(4) Increased student attentiveness may be achieved through room design wherein the room narrows toward the screen or Speaker's Console. Often the angle formed between the side walls is 90 degrees. The angle of Science Hall at Orange Coast College is 70 degrees (see Plate 1 on page 12).

(5) Planners may reduce overall construction and later personnel costs by employing designs for centralized projection rooms when two or more forum-rooms are being considered.

(6) Rear-screen projection is clearly preferable to front projection.

(7) Particular attention should be given to environmental control.

(8) Automatic controls should be located on the Speaker's Console.

(9) Using present estimates, the cost per student station for a 300-seat forum would approximate $ 700.

Utilization

(1) A very wide variety of subject matter is presently being taught in audio-visual forums.

(2) Careful class scheduling can produce excellent classroom utilization evaluations.

(3) Proper utilization may lead to reduced instructional costs.

(4) There are many potential uses for forums other than for formal course instruction.

Instruction

(1) All types of audio-visual media are commonly used in forum-rooms.

(2) It is normal to reduce instructor load (measured in hours per week) proportional to the number of forum lecture hours per week given.

(3) Electronic "student response" systems serve to increase a student's classroom participation in large-group instructional situations.

(4) Most institutions maintain small-group instruction in coordination with their large-group instruction. Normally a class with three lecture hours per week will meet for two hours in a forum-type room; the third hour in individual small groups.

(5) There is great potential for increased learning in the environment of the forum-type room.

BIBLIOGRAPHY

General Statement

The following are representative references which may be useful in the study of or planning for forum-type rooms, listed here for your use in further study of each subject area.

College Planning and Architecture

The following publications are available from the School Planning Laboratory, School of Education, Stanford University, Stanford, California 94305.

Campus Planning: Review and Preview

Community College Planning: Concepts, Guidelines, and Issues

Community Colleges in Urban Settings

Ten Designs/Community Colleges

SPL Research Report No. 5, School Site Selection-A guide

A Window to the Future

A Study on Stydying

Study Carrels

The following publications are available from Educational Facilities Laboratories, Inc., 477 Madison Avenue, New York, New York, 10022.

The Cost of a Schoolhouse

To Build or Not to Build

New Building on Campus

Bricks and Mortarboards

Schools Without Walls

Design for ETV: Planning for Schools with Television

Relocatable School Facilities

Parking for Universities

The following titles, though published earlier than the two previously mentioned groups, may be useful in planning and design studies for junior colleges.

Architectural Forum, Special School Issue, November 1959.

School Planning; F. W. Dodge Corporation, 1956.

Schools for the New Needs; F. W. Dodge Corporation, 1956.

"Schools-A Special 30-page Report"; Architectural Forum, July 1956.

Toward Better School Design, William W. Caudill; F. W. Dodge Corporation, 1954.

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"College Teaching by Television", John C. Adams, C. R. Carpenter, and Dorothy R. Smith; Report of Committee on Television of American Council of Education and Pennsylvania State University, October, 1957.

Instructional Television Research; San Francisco State College, San Francisco, California, 1958.

New Frontiers in Learning, Lewis B. Mayhew; Stephens College, Columbia, Missouri, Educational Facilities Laboratories, Inc., 1959.

"Procedures for Improving Television Instruction", Otello L. Desiderato, Joseph H. Kanner and Richard P. Runyan; Audio-Visual Communication Review, Winter 1956.

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